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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/392,434	09/09/1999	LARRY L. BRADFORD	ACA6124PDUS	1107

28249 7590 06/28/2006

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EXAMINER

SERGEANT, RABON A

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/392,434

Applicant(s)

BRADFORD ET AL.

Examiner

Rabon Sergent

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-11 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11, and 13-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on April 14, 2006 has been entered.

2. Claims 1-3, 5-11, and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, within claims 1 and 9, applicants have claimed “a polyurethane foam that consists essentially of an effective amount for flame retardancy of a flame retardant blend ...”. Since the transitional language excludes all components that would materially affect the composition, it is unclear what components are within the scope of the claim, since the claim can be construed to exclude polyurethane or other components that would have a material effect.

Secondly, within claims 7 and 13, the definition of R renders the claims indefinite, because, in view of the use of “about”, it cannot be determined exactly how many carbon atoms are encompassed by the language, “an alkyl moiety containing from about one to about five carbon atoms. Specifically, it is unclear what constitutes “about one carbon atom”. Also, it is unclear what number of carbon atoms may exceed five and still be within the scope of the claim; for example, is an alkyl group of seven carbon atoms within the scope of the definition.

Furthermore, with respect to claim 13, it is unclear what is meant by “umber”.

Thirdly, within claims 15 and 16, the species, butylated triphenyl phosphate, resorcinol diphenyl phosphate, isopropylated triphenyl phosphate, and poly(ethyleneoxy)phosphate, fail to further limit claims 7 and 13, respectively, because these species are outside the scope of the formulas within claims 7 and 13. Furthermore, with respect to claim 16, it is unclear why “note:” appears within line 1. Lastly, the structure of resorcinol diphenyl phosphate is unclear; it is questioned if the compound has been correctly claimed.

3. Claims 15 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Firstly, support has not been found for the use of “at least one” of the non-oligomeric flame retardants. In other words, support has not been found for using mixtures of these flame retardants.

Secondly, support has not been found for the species, resorcinol diphenyl phosphate, isopropylated triphenyl phosphate, and poly(ethyleneoxy)phosphate. Contrary to applicants’ assertions, these species are not within the examples.

4. Claims 7, 8, and 13-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for polyurethane foams, does not reasonably provide enablement for foam species other than polyurethane. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Applicants’ specification and examples

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are drawn exclusively to the use of polyurethane foams. Accordingly, applicants have failed to provide any guidance for the use of the claimed flame retardant blend within any foam other than a polyurethane foam. In the absence of such guidance, the position is taken that the skilled artisan could not practice the instant invention with other than a polyurethane foam without having to resort to undue experimentation. *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 5, 6, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fearing ('534 or '633) in view of Keppeler et al. ('612).

Fearing discloses the use of oligomeric organophosphorus flame retardants within polyurethane foams and further discloses that the oligomeric flame retardants may be blended

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with additional flame retardants. See column 8, lines 27-34 within the Fearing references.

Fearing further discloses that the oligomeric organophosphorus compounds have hydroxyl numbers of 1 to 50. See column 8, lines 5-15. The oligomeric organophosphorus compounds of Fearing contain phosphate groups; therefore, it is proper to refer to the compounds as organophosphates.

7. Though Fearing discloses that additional flame retarding agents may be used, the primary references fail to recite specific examples. However, non-halogenated phosphate ester compounds were widely known flame retardants for polyurethane foams at the time of invention. This position is supported by the teachings of numerous such flame retardants within Keppeler et al. at column 7, line 33 through column 8, line 67.

8. Therefore, the position is taken that it would have been *prima facie* obvious to select a non-halogenated phosphate ester flame retardant from the numerous flame retardants of Keppeler et al. and employ said flame retardant as a component of the aforementioned, disclosed flame retardant blend of the primary references.

9. Claims 1-3, 5-7, 9-11, 13, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicken et al. ('965) in view of Keppeler et al. ('612).

Sicken et al disclose the use of oligomeric phosphate flame retardants within polyurethane foams and further disclose that the oligomeric flame retardants may be blended with additional flame retardants. See column 4, line 32 within Sicken et al. Sicken et al. further disclose at column 4, line 41 that the oligomeric phosphate, corresponding to disclosed formula I, has a hydroxyl number of 30 to 300 mg KOH/g. It is noted that the lower end of this range

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clearly meets appellants' "no more than about 30 mg KOH/g" claim limitation. Furthermore, the poly(ethyleneoxy)phosphate of claims 15 and 16 is considered to be disclosed by Sicken et al.

10. Though Sicken et al. disclose that additional flame retarding agents may be used, the primary reference fails to recite specific examples. However, non-halogenated phosphate ester compounds were widely known flame retardants for polyurethane foams at the time of invention. This position is supported by the teachings of numerous such flame retardants within Keppeler et al. at column 7, line 33 through column 8, line 67. Flame retardants that correspond to those of claims 15 and 16 are disclosed at column 8, lines 53+.

11. Therefore, the position is taken that it would have been *prima facie* obvious to select a non-halogenated phosphate ester flame retardant from the numerous flame retardants of Keppeler et al. and employ said flame retardant as a component of the aforementioned, disclosed flame retardant blend of the primary reference.

12. Claims 7, 8, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sicken et al. ('965) in view of Keppeler et al. ('612), as applied to claims 1-3, 5-7, 9-11, 13, 15, and 16 above, and further in view of Hardy et al. ('035 or '042).

As aforementioned, the combined teachings of Sicken et al. and Keppeler et al. are considered to render obvious the use of a combination of oligomeric phosphate and non-oligomeric phosphate as a flame retardant blend for polyurethane foam; however, the non-hydroxyl group bearing oligomeric species of instant claims 7, 8, 13, and 14 are not disclosed by the primary reference. Still, the claimed non-hydroxyl group bearing oligomeric species were known flame retardants for polyurethane foams at the time of invention, as evidenced by Hardy et al. The position is taken that the oligomeric species of Hardy et al. are close enough in

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structure and function to those of the primary reference that one would have expected them to function, in accordance with the teachings of the primary reference, as viable oligomeric phosphate flame retardant components of flame retardant blends; therefore, the position is further taken that it would have been obvious to utilize the flame retardants of Hardy et al. in combination with the aforementioned non-oligomeric phosphate flame retardants of Keppeler et al., so as to arrive at the instant invention.

13. Applicants' response of April 14, 2006 has been considered; however, the response is insufficient to overcome the prior art rejections. Firstly, the newly added transitional language, consisting essentially of", within claims 1 and 9 fails to distinguish the instant invention from the prior art. Applicants have neither argued specifically why this language is believed to distinguish the claims nor established that any components of the prior art would have a material effect on the instant composition and are, therefore, excluded in view of the newly added transitional language. Furthermore, applicants' arguments concerning the phosphonate linkages with respect to claims 7 and 13 are immaterial, because these claims have not been rejected in view of a reference that discloses oligomeric phosphonates. Sicken et al., applied against claims 7 and 13, disclose oligomeric phosphates. Lastly, applicants' examples have again been considered; however, the examples are not commensurate in scope with the claims, in terms of component species and ratio amounts. Furthermore, applicants' examples are drawn to polyurethane foams; however, claims 7, 8, and 13-16 are not so limited. It has been held that to overcome a reasonable case of *prima facie* obviousness, a given claim must be commensurate in scope with any showing of unexpected results. *In re Greenfield*, 197 USPQ 227. It has additionally been held that a limited showing of criticality is insufficient to support a broadly

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claimed range. *In re Lemin*, 161 USPQ 288. *In re Kulling*, 14 USPQ2d 1056. For at least these reasons, applicants' examples are insufficient to rebut the *prima facie* cases of obviousness.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.

R. Sergent
June 23, 2006


RABON SERGENT
PRIMARY EXAMINER